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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,640	03/28/2001	Atsushi Koike	35.C15222	2483

5514 7590 04/23/2003

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EXAMINER

FULLER, ERIC B

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 04/23/2003

13

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	09/818,640	KOIKE ET AL.	
	Examiner	Art Unit	
	Eric B Fuller	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 9-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-13 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s): _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Request for Continued Examination

The Request filed on February 19, 2003 for Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 09/818,640 is acceptable and an RCE has been established. An action on the RCE follows.

Response to Amendment

In the amendment filed January 29, 2003 and entered February 19, 2003 in response to the RCE filed, the applicant has the phrase "Please amend claims 1, 6, and 11-13 as follows". However, no instructions have been given on how to amend claim 6. Therefore, claim 6 is being treated as being unamended by the most recent response (the amendment to claim 6 on June 19, 2002 is the current claim on record).

Claim Objections

Claim 2 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claims, or amend the claims to place the claims in proper dependent form, or rewrite the claims in independent form.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burger et al. (WO 98/58100).

Burger teaches a process of supplying a hydrogen gas and a raw material gas for forming a film that comprises at least an Si element (page 5, lines 23-30). High frequency electric power into the discharge electrode may create the plasma (page 3, lines 25-30). The substrate holder, which acts as an auxiliary electrode by producing a substrate bias, is supplied with a frequency that overlaps the applicant's claimed range (page 8, lines 10-15). This auxiliary electrode (figure 1, reference 11) is placed in the vacuum chamber and is in the plasma that is within the chamber. The voltage may be pulsed unipolar or bipolar (page 8, lines 25-30). Depending on the polarity of the voltage, which the reference allows for either or both, the ions and/or electrons are excited in order to control the generation of hydrogen radicals and ion bombardment (paragraph bridging pages 10 and 11). The reference fails to teach the frequency of the high frequency electric power supplied to the discharge electrode. However, it is the position of the examiner that since the reference teaches to use a high frequency power source, to use frequencies within the applicant's broad range of 1MHz to 200MHz would have been obvious at the time the invention was made to a

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person having ordinary skill in the art with the expectation of success, as these values are considered to be high frequencies. Additionally, the reference fails to teach the maximum amplitude of the bias voltage.

However, the reference does teach that there is a cause and effect relationship between the magnitude of the voltage and the hardness of the deposited layer (page 14, lines 4-6). Therefore, it would have been obvious, and within the skill of one practicing in the art, to use voltages that give the desired hardness of the deposited layer.

Additionally, to claim 6, although the reference teaches a single electrode (11) that acts as a substrate holder for multiple substrates, one skilled in the art would recognize the equivalence of multiple electrodes each holding a single substrate. To do this would be a mere duplication of parts, which has been held obvious by the courts. *St. Regis Paper Co. v. Beemis Co. Inc.* 193 USPQ 8, 11 (1977); *In re Harza* 124 USPQ 378 (CCPA 1960).

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burger et al. (WO 98/58100), as applied to claim 1 above, and further in view of Raoux et al. (US 6,162,709).

Burger teaches the limitations of claim 1, as shown above, but fails to explicitly teach the shape of the electrode. However, Raoux teaches a process where a pulsed voltage bias is applied to a substrate by an electrode that is embedded in the substrate holder and comprises a nickel rod that has a small diameter and a small area facing the substrate (column 8, lines 40-50). It would

have been obvious at the time the invention was made to a person having ordinary skill in the art to use the embedded electrode of Raoux in the process taught by Burger with the expectation of achieving similar results, as both reference act to supply a pulsed voltage bias to a substrate.

Response to Arguments

Applicant argues that Raoux explicitly teaches frequencies for the auxiliary electrode that are lower than that of the claims, as they have now been amended. Examiner agrees and has accordingly withdrawn the rejection of the previous Office Action. Applicant's arguments are moot in view of the new grounds of rejection.

Conclusion

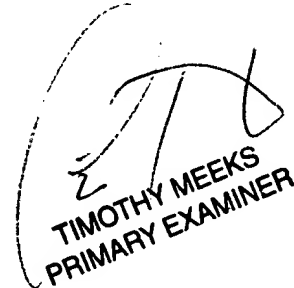
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B Fuller whose telephone number is (703) 308-6544. The examiner can normally be reached on Mondays through Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck, can be reached at (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



EBF
April 18, 2003



TIMOTHY MEEKS
PRIMARY EXAMINER